WASHINGTON STATE DEPARTMENT OF ECOLOGY

The Closed-Loop Scoop

Washington State Department of Ecology, Solid Waste & Financial Assistance Program

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Contents

Spokane Architect Takes Home Award

Environment-friendly work wins recognition

In November, Spokane architect Tom Angell received the state of Washington's highest environmental honor for his work as a champion of environmentally friendly building.

Tom Angell was presented the award at Eastern Washington's "Washington Recycles Day" event held at the Red Lion Hotel at the Park. The Department of Ecology's Mike Hibbler presented the award. Hibbler manages Ecology's solid waste program in Spokane. The solid waste program is responsible for Ecology's green-building initiative.

The green building initiative is Washington state's drive to bring green-building principles to the main stream.

"His influence and energy has really helped to bring this part of the state to the forefront of green building," Hibbler said when presenting the award. "We're very lucky to have Tom here, making a very tangible difference in our community."

Angell was instrumental in bringing the movement of environmentally friendly design and building to Eastern Washington. As a founding member and current president of the Inland Chapter of the EcoBuilding Guild, Angell has brought the concepts of green building to city buildings, schools, retail stores, and homes in the Spokane area.

The Inland Northwest Chapter of the Northwest EcoBuilding Guild is an association of builders, designers, homeowners, tradespeople, manufacturers, suppliers, and others interested in sustainable building.

With advice from the Guild and funding from the State Board of Community and Technical Colleges, the Community Colleges of Spokane (SCC) developed a first-in-the-nation apprentice and journeyman's training program in green-building technologies.

Angell designed a flexible workspace for the hands-on training that is part of this innovative green building training. He was the principal designer of the Green Building Training Module at the Apprentice Training Center at SCC.

The training module includes demonstration areas where students can install radiant-heat flooring, alternative walls systems, and green roofs that use plants to add insulation and strength. The trainees can deconstruct and reinstall most of these systems in the same space with each successive class.

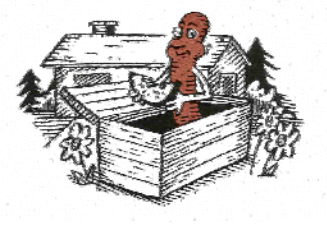
Angell also helped to design two straw bale homes that the Spokane County Conservation District built and sold in the Spokane Valley in 2001. These homes are unique because they competed in the market with surrounding stick-built homes in a "hot" real estate market in an established neighborhood.

Both homes sold at prices competitive with surrounding properties, and offer identical features (3 bedroom, two bath, attached garage), but use less than half the energy of their neighbors.

See related stories in August 2004 and May 2005 issues of *The Closed-Loop Scoop:* http://www.ecy.wa.gov/biblio/closed_loop.html.

Fort Worden's Army of Worms Will Work for Food

Port Townsend, Washington



". . . worms in each square foot of bin-space can consume 10 pounds of food in a couple of days."

Fort Worden State Park Convention Center has worms—and they're eating food scraps from the new Convention Center dining facility and from the Olympic Youth Hostel. This is a *good* thing, as those worms are working efficiently to keep organic scraps out of the landfill. And this spring approximately three yards of harvested vermicompost (compost and worm castings) will provide the park or local gardeners with a naturally rich soil amendment free of cost. Vermicomposting helps Fort Worden meet the state's **Executive Order 02-03** to model sustainable practices; the Fort is also modeling a key **Beyond Waste** strategy with their *Fort Worm* project: lead by example in state government. With this project, Fort Worden has jumped ahead of the crowd.

Helping the Fort make this leap towards sustainability is Christopher Overman, manager of the Olympic Youth Hostel located at Fort Worden, and another volunteer, Deirdre Morrison. While Christopher had been successfully composting the Youth Hostel's food scraps for years, Deirdre helped expand the vermicompost project to include food scraps from the new dining facility at the Convention Center.

Starting with a small budget, big ideas, and hours of volunteer time, they built the "worm barracks" in November 2004. Volunteers collect preconsumer food waste from the dining facilities two or three times a week. The worm bins are

"fed" on a rotating schedule; the worms in each square foot of bin-space can consume 10 pounds of food in a couple of days. Since December 2004, Fort Worden's worms have helped divert over 6,000 pounds of food scraps from the landfill.

High employee turnover at the dining facility does cause a few problems for the Fort Worm project. New employees are often confused about the "composting scheme," and their uncertainty leads to contamination, reduced food recovery volumes, and extra hours spent on educating new staff. Additionally, the vermicompost system has limited ability to handle seasonally fluctuating quantities of food and postconsumer food scraps that include meat and dairy products.

While the project is not without its challenges, Fort Worden takes pride in modeling sustainable behavior for their community and the county. Hostel-led educational tours of the Fort have integrated the vermicompost project for visiting school groups and scout troops. Many kids and adults experience a whole new world when the worm bin is opened—which opens their minds to new ways of changing a waste to a resource that can work for them.

As Fort Worden closes the loop on the organic waste stream, they also become a successful model for other agencies.

Spokane Office Workers Recycle Their Lunch

Coffee grounds and paper towels toss in their support

In August 2005, staff throughout Ecology's Eastern Regional Office (ERO) began collecting food scraps and some waste paper items. They then deposit their collected organic material in a vermicomposting unit called the Worm Wigwam. The Worm Wigwam can turn 7-14 pounds of material per day into a nutrient-rich soil amendment. The amendment will be used on ERO's grounds/landscaping, for employees' personal potted plants, or for donation.

Wigwam

Kitchen bucket

Nearly every coffee bar and lunch area is equipped with a covered three-gallon bucket to collect food scraps and other plant-based materials, such as fruits, vegetables, bread, pasta, cereal, coffee grounds, filters, and paper towels. Volunteers empty the collection buckets on a weekly basis. Since start-up in August made the Wigwam's first year short, employees still recycled 410 pounds of organics in 2005! On average, 140 employees work at ERO. Pounds collected steadily went up each month, so numbers should be greater in 2006.

Beyond Waste Organic Initiative

The Beyond Waste Organic Initiative was created with three main goals in mind.

1. Create **robust markets** for organic-based products where the demand for high-quality organic products encompasses all sectors of the economy.
2. Refine collection and processing systems so **closed-loop materials management** is a viable option for businesses that create organic waste. Organic wastes will be transformed into beneficial products according to the highest and best use.
3. Organic recovery and use are the norm in Washington State, creating a **society that supports a sustainable organics cycle**. Businesses and governments incorporate organics recovery and use into their decisions; economic and regulatory incentives are aligned to support this system.

If you would like additional information on the Beyond Waste Organic Initiative, go to http://www.ecy.wa.gov/beyondwaste/ or contact Chery Sullivan @ chsu461@ecy.wa.gov.

Award-Winning Beyond Waste Plan

The Washington Organic Recycling Council (WORC) honored Ecology's Beyond Waste Plan with an award *For Promoting Organics Recycling in Washington State*. Based on its achievements, prescribed activities, and vision of organics recovery and beneficial use, Beyond Waste was nominated by the facilities and agencies that it seeks to influence. This prestigious award was presented at WORC's Annual Meeting in Ellensburg, Washington, in December 2005. For more information on WORC, please visit http://www.compostwashington.org/.

(Fort Worden's Worms continued)

The next steps for the Fort Worm project include the installation of a commercial vermicompost system; this system will require fewer volunteer hours and will have faster processing times with an ability to handle higher volumes more efficiently. They hope to have the new system operational before the busy summer season begins.

If you would like more information about this project, contact Christopher Overman at olympichostel@olympus.net.

Reuse of Building Earns College Top Environmental Award

Old digs can learn new tricks

South Puget Sound Community College (SPSCC) found a way to support education for future generations of students, reduce landfill disposal, and get a good report card all at once. At the December 15 meeting of the SPSCC Board of Trustees, the college received the state's top environmental honor, the Environmental Excellence Award. The Department of Ecology presented this award to SPSCC for giving its last portable building a new life and keeping tons of demolition debris out of the landfill.

Besides the environmental benefits of the move, the college saved thousands of dollars in demolition and disposal costs, and a small private school found a low-cost alternative for expansion.

"This is a terrific example of how we can eliminate waste by keeping our buildings in use until they no longer serve our needs," said award presenter, Dick Wallace, director of the Department of Ecology's Southwest Regional Office in Lacey. "South Puget Sound College is a leader in showing that building reuse saves money, helps the environment and serves community needs."

The state Department of General Administration assisted the college through a program that can surplus used buildings and find willing buyers. In this case, the buyer was small, private Sunrise Beach School, located near Griffin School in Thurston County.

Sunrise Beach School paid the state a scant $250 for the building and paid a contractor $56,000 to prepare and move the building, saving hundreds of thousands of dollars compared to new construction costs. As another bonus, the college saved more than $40,000 in demolition and disposal fees in getting rid of the buildings.

The college's portable, previously known as Building 23, had included classrooms, lounges, an art studio, and faculty offices (one once occupied by an instructor who went on to edit a famous waste-reduction newsletter). The sectional units of the building are now on Sunrise Beach School's 15-acre parcel west of Olympia. Beginning in September 2006, these sections of the former college building will provide Sunrise Beach School with space for five classrooms, a preschool, a rock and mineral museum, and a library.

The Ecology Department gives the Environmental Excellence Award to individuals, businesses, or organizations that have shown leadership, innovation, or extraordinary service in protecting, improving, or cleaning up the environment.

SPSCC President Kenneth Minnaert holds award while Trustee Leonor Fuller and Ecology's Dick Wallace look on.

Calendar of Events

March 16, 2006, Built Green Conference & Expo, Seattle. For more information, call 425-460-8238 or visit the conference Web site at http://www.builtgreen.net/conference.html.

March 20-22, 2006, BioCycle West Coast Conference, Portland. To learn more, call 877-385-9510, or visit the conference Web site at http://www.jgpress.com/conferences1/conferences1.html.

May 21-24, 2006, Washington State Recycling Association 25th Annual Recycling Conference and Trade Show will take place in Spokane. For details, contact the Washington State Recycling Association at 206-244-0311 or visit their Web site at http://www.wsra.net/.

March 22, 2006: New Science on Potential Health Impacts of Phthalates. Shanna Swan, Ph.D., Multnomah Athletic Club, Portland. **April 17, 2006: Hooked on Antibiotics: Does Use in Animals Impact Humans?.** David Wallinga, M.D., M.P.A., Multnomah Athletic Club, Portland. For information about these events, call the Oregon Environmental Council at 503-222-1963 or visit their Web site at http://www.oeconline.org/events.

Illahee Earth Matters Lecture Series: 2/24, Kenneth Deffeyes; 3/22, Maude Barlow; 4/21, Michael Klare; 5/10, Michael Pollan. To learn more, call 503-222-2719 or visit the Web site at http://www.illahee.org/lectures.

Kitsap County Wins EPA Award for Waste Reduction (Again!)

Good practices with staying power

The U.S. Environmental Protection Agency (EPA) presented Kitsap County with a Local Government Partner of the Year Award for maintaining its position as a leader in waste reduction. With its cost-saving waste reduction programs, Kitsap County proved once again that recycling does pay.

It was another successful year for Kitsap County, a WasteWise award winner for the past five years. Kitsap County's unique waste reduction program collected more than 3,300 tons of material for recycling and saved more than $260,000 in avoided disposal costs. This success stems from several key program features, including a countywide directive to annually identify and report on waste reduction activities and to attend annual trainings on reducing waste. Employees used the paperless Wa$te Exchange to swap office surplus, rather than buying new products, and saved $1,400 in the process.

Kitsap County is one of only 10 organizations to receive a Partner of the Year Award at this event.

WasteWise is a free and voluntary partnership program launched by EPA in 1994. The program provides guidance and recognition to more than 1,800 participating organizations that are working to find practical methods to reduce municipal solid waste and improve financial performance.

For more information about EPA's WasteWise program and details about the WasteWise 2005 Annual Conference, please visit the Web site at www.epa.gov/wastewise, or contact the WasteWise Helpline at 1-800-EPA-WISE (372-9473).

Terry Husseman Sustainable Schools Awards Program Reminder!

Ecology intends to reward schools that embrace sustainability through the Terry Husseman Sustainable Schools Awards Program. Up to $30,000 will be awarded this year.

The application package is available on the web at http://www.ecy.wa.gov/programs/swfa/terryhusseman.html, or by contacting Michelle Payne at mdav461@ecy.wa.gov or 360-407-6129. The applications are due February 28, 2006. The judging and selection will happen in March, notice of the chosen applicants will occur in April, and an award ceremony will be held in May 2006. Please encourage your local school to participate. To see a list of last year's award winners and the projects they undertook, visit this Web site: http://www.ecy.wa.gov/programs/swfa/terryhusseman.html#Winners.

26th Annual Recycler of the Year (ROY) Awards, Spokane, WA - May 22, 2006

Each year, the Washington State Recycling Association (WSRA) seeks nominations for outstanding recycling professionals, innovative government administrators, and everyday folks making a measurable difference to improve the economic vitality and environmental well being statewide.

Winners are selected by a diverse volunteer committee composed of waste reduction educators, garbage collectors, recycling processors, government leaders, and environmental advocates. The 2006 awards will be presented at the **WSRA 2006 Annual Banquet Dinner** at the Spokane Convention Center, May 22, 2006.

Awards Nomination Process

For a nomination to be considered, WSRA must receive a completed form no sooner than **January 1, 2006**, and no later than **March 1, 2006** (no postmarks, but faxes are fine). The WSRA Awards Committee selects all award recipients. Areas of consideration include innovation, environmental and economic benefit, level of commitment, and expansion potential to the greater recycling community.

For a nomination form, visit http://www.wsra.net/PDF-WORD/Awards%20Nomination%20Form%202006.pdf or call WSRA at 206-244-0311.

Three Bioenergetic Steps by Washington State

Advances east of the mountains move statewide

1. Biomass to Energy - WSU Anaerobic Digester

In 2005, the Department of Ecology funded a Washington State University (WSU) project to build an anaerobic digester that can turn organic wastes into methane gas, a fuel for generating electricity (see *Closed-Loop Scoop*, May 2005 at http://www.ecy.wa.gov/biblio/0507004.html). The WSU Anaerobic Digester is in test mode, with feeding the digester solids and liquids to begin shortly after test trials are complete. The research team is delighted with the opportunity to begin operations (even in Pullman in the middle of winter). An electrical transformer had to be replaced and located at the site before final startup could begin. Hot water is used to warm up the tanks, pipes, and pumps. Tanks and equipment are being tested to assure proper operation.

WSU Pilot-Scale Dairy Manure/Municipal Organics Anaerobic Digester

2. Statewide Biomass Inventory Is Complete

The final report on the Statewide Biomass Inventory and Assessment is complete. Results of the project will be presented at the Harvesting Clean Energy Conference in February in Spokane and at the Biocycle Conference in March in Portland, Oregon. The report can be found at http://www.ecy.wa.gov/biblio/0507047.html.

The results of this study show that Washington State has an annual production of over 16.9 million tons of underutilized dry equivalent biomass (organic waste materials). This biomass could produce, through combustion and anaerobic digestion, over 15.5 billion kWh of electrical energy or 1,769 MW of electrical power. This annual power total, assuming complete use of the inventoried biomass, is equivalent to just about 50 percent of Washington State's annual residential electrical consumption (U. S. Energy Information Administration, Annual Energy Review 2003, at http://www.eia.doe.gov/emeu/aer/pdf/pages/sec10_2.pdf).

Washington is blessed with a vast and diverse, annually renewable biomass that is mostly forestry residue, field straws, and yard waste. These materials present technical and economic challenges in collection and processing. However, about 15 percent of the available biomass is in the form of more readily biodegradable and concentrated waste streams coming from municipal solid waste, animal manure, and food processing wastes. Mapping of the biomass showed regional areas of concentration, with the highest concentrated areas being regions where forestry and municipalities or forestry and agriculture intersect, such as the Puget Sound/Cascade and Yakima regions. (See map, next page.)

The abundance, diversity, and distribution of these organic resources should begin to catalyze thinking about the development of renewable fuels and energy strategies within our state. Coincidentally, the distribution of the resource aligns with areas where new business opportunities and jobs are a high priority. Distributing production this way also offers other benefits (such as decreased dependence on outside supply, market independence, and local control) that make development of these resources a vital interest of the state.

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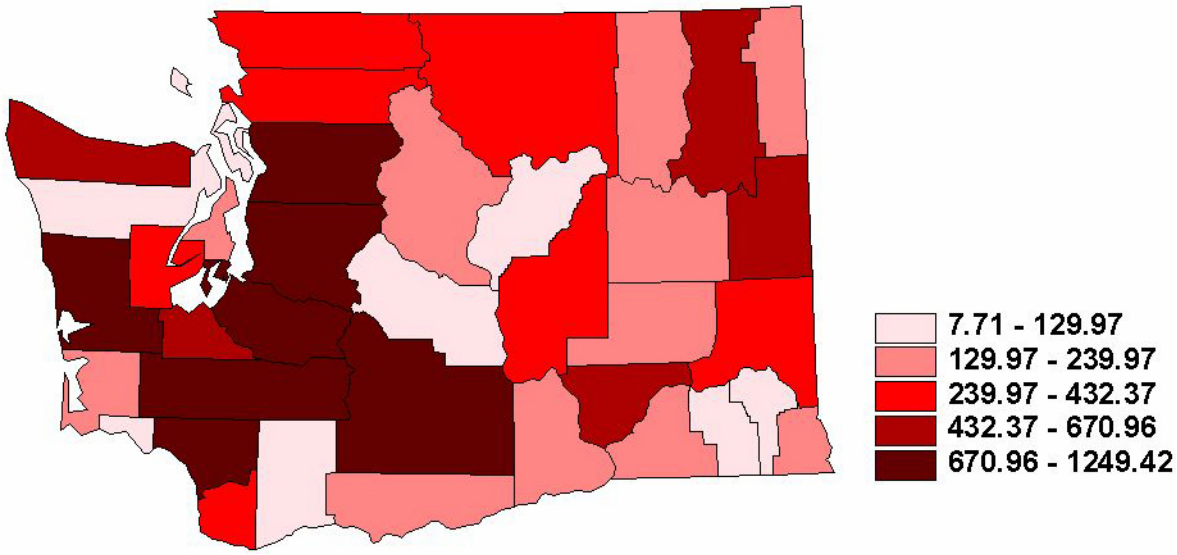
(Bioenergetic Steps, continued.)



Bioenergy by County and Region (Bioenergy in million kWh)

3. Support Sustainable Communities and Natural Resources

Ecology staff have worked diligently over the past four years to develop a common set of goals and agency-level support for beyond waste initiatives in recovery and use of organic wastes for bioenergy and bioproducts. Staff continued to encourage an understanding of biomass as a resource within state government agencies and to develop a state-agency vision of how best to use these resources. Another ongoing effort is to develop support for renewable fuel, energy, and products strategies with regard to organic wastes. Staff also work to support common policy development and to seek appropriate funding for building industry capacity.

The initial steps taken by Ecology with WSU have now grown into a state-government bioenergy committee with monthly meetings and a lot of coordination. The Governor designated the Washington Department of Agriculture to lead the bioenergy efforts. Other cooperative partners on the bioenergy committee are the Department of Community, Trade and Economic Development, the Center for Sustaining Agriculture and Natural Resources, the Center for Bio-products and Bio-energy, WSU research and extension Energy Office, the Office of Financial Management, and Ecology. What a difference these past years have made!

Annual Solid Waste Status Report

Solid Waste in Washington State - Fourteenth Annual Status Report (Publication #05-07-046) will be available in late February. It will contain recycling/diversion, moderate risk waste and disposal information for 2004, litter statistics, and various "partnering for the environment" activities during the past year. Please check Ecology's solid-waste Web site "What's New" at http://www.ecy.wa.gov/programs/swfa/index.html in the next few weeks to link to the on-line copy. Much of the recycling/diversion and disposal data contained in the report is already available at http://www.ecy.wa.gov/programs/swfa/solidwastedata/.

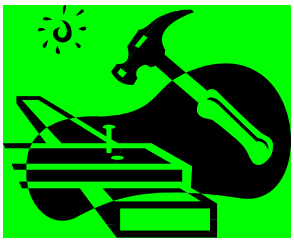
If you would like to reserve a printed copy of the annual status report, please send your name and mailing address to by e-mail to MATH@ECY.WA.GOV (please put Request for Annual Status Report in subject line) or mail to Margo Thompson at SW&FAP, Dept. of Ecology, P.O. Box 47600, Olympia, WA 98504-7600.

Employment Opportunities

The Solid Waste & Financial Assistance Program in Lacey is preparing recruitments to fill two vacant positions: The Statewide Coordinated Prevention Grant Program (CPG) Coordinator (Environmental Specialist 4, $3,579 - $4,570 per month); and The Environmentally Preferable Purchasing (EPP) Coordinator (Environmental Specialist 3, $3,071-$3,940 per month). If you would like a copy of the job announcements when they become available, please contact Lydia Lindwall at: llin461@ecy.wa.gov .

Green Building Busting Out All Over

News from Department of Corrections writer, Janine Bogar



". . . state sustainability directives are having the desired effect . . ."

It started with the Jimmie Evans Performance Center at the Monroe Correction Complex (MCC) in Snohomish County, and the new warehouse at the Washington State Penitentiary (WSP) in Walla Walla quickly followed. Then came the new Headquarters building in Tumwater (shared with Department of Transportation), an intensive management/segregation unit and a warehouse at MCC, a seven-building expansion project at WSP, and a new warehouse for Correctional Industries in Tumwater. But this is not just any building boom—this is a green building boom! That's right: Department of Corrections (DOC) has made a firm commitment to Building Green.

In fact, DOC made it part of its sustainability plan for all new buildings and major renovations to be at least LEED™ Silver certified, and did this well before the Governor's Executive Order 05-01 set the requirement for all state government buildings. This head start, and DOC's aggressive construction schedule, enabled the agency to have nine LEED™ buildings in design, under construction, or completed as of December 2005. LEED™ stands for Leadership in Energy and Environmental Design. It provides a flexible green building standard for new construction, aimed at reducing the environmental impact of the building, enhancing indoor air quality and occupant comfort, and helping to stimulate local industry.

Jimmie Evans Performance Center

The Jimmie Evans Performance Center, Monroe

To our knowledge, the Jimmie Evans Performance Center, certified Gold in October of 2005, is the first corrections building in the country to achieve LEED™ certification. The Performance Center features rainwater capture for flushing toilets, low-flow fixtures, and substantial use of building materials that contain recycled content and/or were produced within 500 miles of the building site. Furthermore, 28 tons of waste was diverted from the landfill during construction. There are two more green buildings underway at MCC, one of which will be another first: the first LEED™ certified offender housing unit (IMU/Seg).

Tumwater Office Building – DOC HQ

Department of Corrections Headquarters, Tumwater

Along with the Department of Transportation, DOC Headquarters just moved into a new building (Tumwater Office Building or TOB) that is in the LEED™ certification process, with a Silver rating expected. Day-lighting, a green roof, no-mow and no-irrigation landscaping, and water-saving fixtures are some key green components. The TOB is the first LEED™ structure created by the building firm, a sign that state sustainability directives are having the desired effect of encouraging private industry to adopt green practices. The TOB is also the first LEED™ building that the State of Washington has leased.

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Correctional Industries Warehouse, Tumwater

Tumwater will soon be home to another DOC green building: the Correctional Industries Warehouse and Office. This building will feature water efficient landscaping, minimized storm-water run-off, and views for 90 percent of the office spaces. Low-emitting materials, certified wood, recycled-content products, and locally/regionally produced materials are being used. A majority of construction waste is being diverted from the landfill. It is expected this building will meet LEED™ Silver Certification.

Washington State Penitentiary Warehouse, Walla Walla

The new warehouse at WSP gained a Silver LEED™ certification. Features include a high-mass building envelope (walls, roof, and foundation), natural ventilation in storage areas, a reflective white roof to reduce heat gain, sky-lights for day-lighting, and exterior lightshelves to bounce light into the building. And, similar to MCC, this building will usher in many other LEED™ buildings at WSP—as the 768-bed North Close Custody Expansion project should be finished in 2007.

Green Building is just one of the sustainability efforts underway at DOC. Stay tuned for more news about how DOC is making a sustainable difference.

Washington State Penitentiary Warehouse, Walla Walla

Neighbors Keep Seattle 'Clean & Green' as Program Marks Milestone

Imagine picking up 125,000 pounds of litter, fixing 2,849 broken streetlights, and removing 5,709 graffiti tags. This could give you an idea of what neighborhood volunteers have helped to accomplish working together with the city to keep Seattle "Clean & Green."

Seattle recently held its 50th "Clean & Green" event since Mayor Greg Nickels launched the neighborhood cleanup initiative four years ago. Nickels and city work crews joined volunteers from the Haller Lake neighborhood to pick up trash, landscape, and clean up the area around Northacres Park.

"Over the past four years, I've had the honor to roll my sleeves up with more than 5,500 people who gave up a part of their Saturday to make a difference in their neighborhoods," Nickels said. "That spirit of commitment and community is what makes Seattle such a beautiful place to live."

Nickels created the Clean & Green program shortly after taking office in 2002. Since then, one Saturday a month, the mayor has joined with community volunteers and work crews from Seattle City Light, Seattle Parks and Recreation, Seattle Police Department, Seattle Public Utilities, Seattle Department of Transportation, and other departments to tackle cleanup projects in neighborhoods around the city.

The results have been tremendous. Over the past four years, program volunteers have recycled more than 5,000 pounds of metals and other recyclable materials and planted 2,144 plants and flowers. Each year, they have cleaned up more than 30 illegal dumpsites.

Recycling Rate Climbs for Officially Defined Recyclables

More inclusive "diversion rate" climbs, too, but more slowly

Recycling in Washington rose to 42 percent in 2004, up from 38 percent the year before, according to new numbers compiled by the Department of Ecology.

The state made gains primarily in metals, paper, and yard-waste recycling. Ecology officials say this is due to good recycling practices, better resale markets for the materials, and more yard-waste collection programs.

State law specifies what types of recycling and waste count in the official recycling rate. These types include most recycling of glass, plastic, paper, and metals, and some recycling of tires and used oil.

Other sorts of reuse and recycling are easing the pressure on landfills, even though they do not officially count as recycling. They include land-clearing debris, furniture, construction and demolition debris, mattresses, batteries, paint, and clothing. If we add these to the officially counted recycled items, the rate for diverted materials is 48 percent, up from 47 percent in 2003.

"To have almost half of the waste generated in Washington diverted away from landfills is a great success story," said Cullen Stephenson, who manages Ecology's solid-waste program. "It's evidence of responsible waste management by citizens and businesses."

However, he noted, while recycling has increased, the total amount of waste generated has continued to climb.

Currently, Washington residents produce an average of 7.5 pounds of waste per person each day, compared to 7 pounds a day in 2003.

"Yes, we are recycling more than ever before, but we're also producing more garbage," said Stephenson. "Despite good efforts to properly take care of waste, we're still putting more into landfills than ever before."

Studies in Washington, Oregon, and California show that large amounts of food scraps and paper go to landfills.

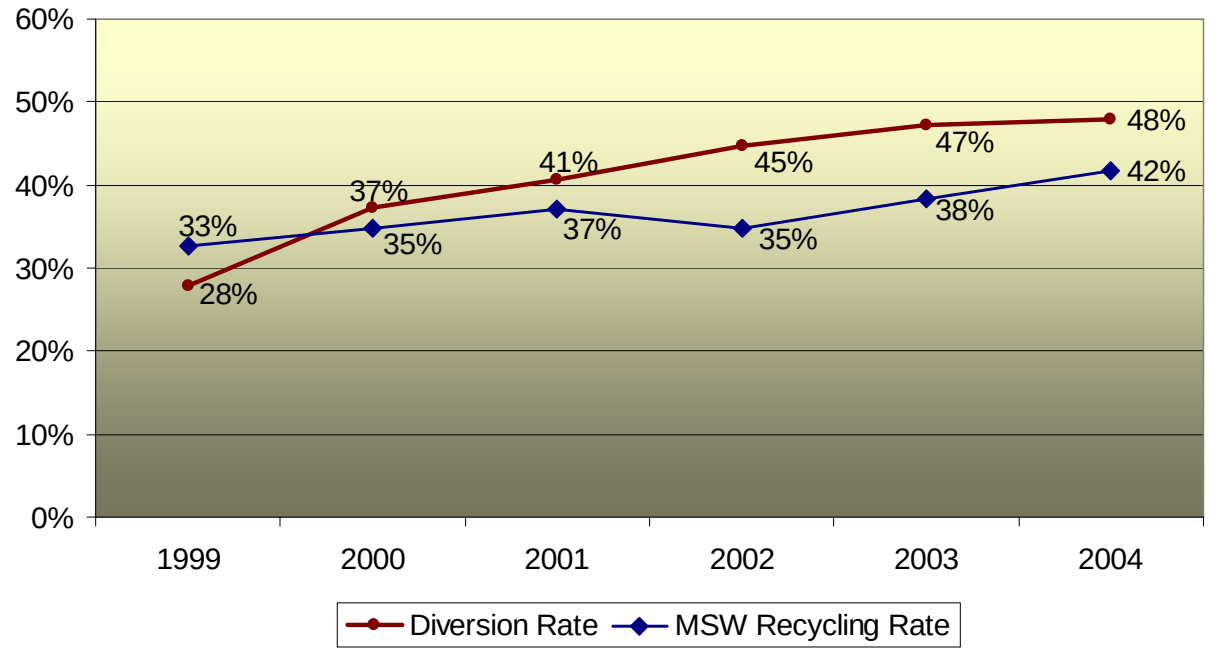
"Two-thirds of the waste going to landfills could be recycled or diverted," Stephenson said. "It is time to move forward in how we think of waste and prevent it from even being created in the first place."

Some additional ways to reduce the amount of waste we send to landfills include composting food scraps, avoiding products with unnecessary packaging, and recycling or donating the purchased item when we are finished using it.

A 1989 Washington state law established a statewide recycling goal of 50 percent. The highest annual rate achieved so far was 42 percent in 2004. By contrast, the latest reported national average is 27 percent.

For more information about Washington's recycling and diversion data, please visit our solid waste data page at http://www.ecy.wa.gov/programs/swfa/solidwastedata/.

Diversion Rate and MSW Recycling Rate 1999 - 2004



Straw-to-Paper: Turning an Agricultural Residue Into a Commodity

Patricia Jatczak, Sustainability Strategist

Currently, valuable resources are commonly burned in eastern and central Washington. State law allows orchardists to burn orchard prunings and tearouts under certain conditions and under permit. Wheat farmers are allowed to burn when no better alternatives are available. Both of these permitted activities cause air pollution and waste resources.

But it doesn't have to be that way. The Department of Ecology and the agricultural community are always looking for other options. Some opportunities are brewing in these regions that support Ecology's mission of preventing pollution and supporting sustainable communities and natural resources: turning agricultural residue into a commodity instead of sending it up in smoke. Both wheat straw and orchard wood are being looked at very closely as sources of pulp for a wide range of paper products. This article focuses on wheat straw.

Some agricultural stubble has traditionally been burned in the grain-growing regions of Washington, Oregon, and Idaho. In 1999, Ecology and Washington wheat farmers negotiated a successful memorandum of understanding (MOU) to reduce field burning by 50 percent from 1998 levels by the year 2006. Farmers are right on target for reaching this reduction, and this has improved the quality of the air breathed by several hundred thousand people.

However, there are still more than 130,000 acres of wheat residue burned annually in Eastern Washington. This adds thousands of tons of particulates and other air pollutants to the air.

Burning is a useful technique at certain times, but the farmers would like to find an alternative to burning as a waste-management technique. The 700,000 people that live downwind would like that very much, as well. Burning is still allowed, but in a much more controlled environment, with permission to burn being granted based on meteorological conditions. Ecology collects a small burn-permit fee and some of this money becomes available for grants to find alternatives to field burning.

Mark Lewis, a pulp and paper researcher from the University of Washington, has been a recipient of some of these funds to research the feasibility of turning wheat residue into pulp that can be used in products. The UW also has a grant to look at how orchard wood can be used in paper products. The data is promising.

Wheat residue can be turned into pulp and used for a variety of products, such as cardboard, molded containers, and office paper. Using this fiber helps reduce air-quality concerns from field burning, provides a pulp feedstock to the mills, and contributes to economic development in the region. Some successful commercial runs have already occurred in using the pulp to make molded containers and cardboard medium, and other trials are underway. Recently a market has been found to use wheat straw pulp for paperboard. Getting the pulp to an acceptable brightness level for copy paper is a challenge that is still being researched.

A recycled paper mill that closed in 2001 could take wheat residue. It is located in the heart of the wheat-country area where stubble is burned, in Wallula, Washington. About 90 percent of the wheat fields now being burned are within 100 miles of this mill.

There is a potential investor, Columbia River Pulp, LLC, which wants to restart this mill to make pulp from recycled paper, and to use straw as one of the feedstocks. This mill can be tooled to be able to pulp wheat straw, which then can be used as a valuable commodity. Given the current market conditions for recycled pulp, it is very timely to be reopening this mill and adding straw pulp to the mix.

While straw pulp can be used for a variety of low-end products, such as cardboard, newsprint, and berry boxes, it is its use as a raw material for copy paper that will make it economically feasible to invest in the processing of wheat straw. There are still many hurdles to overcome before we are using straw paper in our copy machines. The economics and logistics of getting the stubble baled, stored, and transported to a pulp mill still need to be worked out.

Walla Walla County is going forward with foreclosure proceedings on the mill, and will hold an auction around May 2006. They need to recover over $5 million in back taxes.

The original mill closed up shop in 2001. It was designed to take used paper, de-ink it, and make recycled-market pulp. Mill construction was started in 1995 when market conditions were good, but it was not completed until 1998. By then, market conditions had changed and the mill could not compete. Improvements were made to the mill, but the economy still wasn't improving, so the bondholders pulled the plug. About 60 people lost their jobs.

A group of people including Ecology employees, the Environmental Protection Agency, the University of Washington, and the Pollution Prevention Resource Center have been working to keep the agencies interested in supporting this project. There are still a lot of moving pieces, a lot of unknowns. But, many people working on this concept of using straw for paper products instead of burning it feel that this is the time, that is the place, and these are the leaders that can help make this vision into reality.

Using straw for paper is not new. Until World War II, all of the cardboard was made from straw. It's just a good idea that has come back around again.

Department of Ecology

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